

Multiple Choice Practice!

37 35

7. The solubility product, K_{sp} , of AgCl is 1.8×10^{-10} . Which of the following expressions is equal to the molar solubility of AgCl?

- a. $(1.8 \times 10^{-10})^2$ molar
 b. $\frac{1.8 \times 10^{-10}}{2}$ molar
 c. 1.8×10^{-10} molar
 d. $\sqrt{1.8 \times 10^{-10}}$ molar

$$K_{sp} = [Ag^+][Cl^-] = x^2 = 1.8E-10 \Rightarrow x = \sqrt{1.8E-10}$$

8. Which of the following is equal to the solubility product, K_{sp} , of Ag_2CO_3 ?

- a. $K_{sp} = [Ag^+][CO_3^{2-}]$
 b. $K_{sp} = [Ag^+][CO_3^{2-}]^2$
 c. $K_{sp} = [Ag^+]^2[CO_3^{2-}]$
 d. $K_{sp} = [Ag^+]^2[CO_3^{2-}]^2$

9. If the solubility of BaF_2 is equal to x , which of the following expressions is equal to the solubility product, K_{sp} , of BaF_2 ?

- a. x^2
 b. $2x^2$
 c. $2x^3$
 d. $4x^3$

$$K_{sp} = [Ba^{2+}][F^-]^2 = x(2x)^2 = 4x^3$$

10. In a saturated solution of Na_3PO_4 , $[Na^+] = 0.30$ M. What is the molar solubility of Na_3PO_4 ?

- a. 0.10 M
 b. 0.30 M
 c. 0.60 M
 d. 0.90 M

$$[Na^+] = 3x \Rightarrow x = \frac{0.30M}{3} = 0.10M$$

11. What is the maximum mass of AgCl can dissolve in 100. mL of pure water at $25^\circ C$? The molar solubility of AgCl is 1.3×10^{-5} .

- a. 1.7×10^{-4} g
 b. 1.7×10^{-5} g
 c. 9.1×10^{-9} g
 d. 9.1×10^{-6} g

$$1.3E-5 \frac{mol}{L} \times 0.100L = 1.3E-6 mol \times \frac{143.32}{1 mol} \approx 1.3E-6 \times 150$$

$$(1.3E-6) \times 100 \times 1.5$$

$$(1.3E-4) \times 1.5 \approx 2E-4$$